

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport
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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:

1922.

June 19	Independent Air Force, R.A.F., Dinner, Hotel Cecil
June 23-25	International Competition for Touring Aeroplanes, Brussels
June 24	Royal Air Force Pageant, Hendon
June 27	Royal Aero Club 21st Anniversary Banquet
July 29	Aerial Derby, starting at Waddon
Aug. 6-20	French Gliding Competition
Aug. 6	Gordon-Bennett Balloon Race, Geneva
Aug. 7	R.Ae.C. Race Meeting, at Waddon
Aug. (last fortnight)	Schneider Cup Seaplane Race, at Naples
Sept.	Tyrrhenian Cup, Italy
Sept.	Italian Grand Prix
Sept. or Oct.	R.Ae.C. Race Meeting, at Waddon
Sept. 22	Coupe Deutsche (300 kil.)

1923.

Dec. 1	Entries Close for French Aero Engine Competition
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1924.

Mar. 1	French Aero Engine Competition.
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INDEX FOR VOL. XIII.

The Index for Vol. XIII of FLIGHT (January to December, 1921) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 1s. per copy. (1s. 1d. post free).

EDITORIAL COMMENT.



WO outstanding facts were brought to light at the Third Croydon Aviation Meeting held on June 3. One is that people will not go to Waddon on a Saturday preceding Whit Monday in anything like the numbers which have been found to visit the aerodrome on a Bank Holiday or Easter Monday. The other is that, apparently, the racing interferes with the "legitimate" business of the aerodrome, and must, not unnaturally, await the arrival or departure of commercial machines. The attendance on Saturday was very far below that of Easter Monday. In fact, we should not think that the number was more than one-fourth or one-fifth of that of the latter day. Evidently people had set aside Whit Monday for their outing, and the idea of going to see the racing at Waddon on a Saturday afternoon preceding it did not appeal to them. At least that is the conclusion to which one must come, in view of the pronounced falling off in attendance. The moral is, of course, simple enough—Hold future meetings (of a minor character) on the Monday.

The second fact to which we have referred is not quite so easy to settle, although settled it will have to be if air racing is to continue. We have on several occasions questioned the desirability of holding race meetings at Waddon aerodrome, not only because the aerodrome is very far from being a good one for the purpose, but also because it is quite obvious that the regular traffic cannot, and should not, be interfered with by air racing. On Saturday the start of the first race had to be postponed on account of an incoming machine, which was reported to be approaching the aerodrome. It finally arrived, and the race started over half an hour late. Later in the day, another race was due to start, when it was reported that four machines were approaching Waddon.

Another wait followed, and in the end, after waiting more than half an hour, three machines did turn up, and the race could proceed.

In view of the fact that, by crowding the events, the organisers of the Whitsun Meeting were able to finish the last event according to schedule, the delays can in no way be ascribed to faulty organisation. As a matter of fact, the organisation was very much better than at the Easter Meeting. The machines had numbers painted on their rudders, and were thus much more easily identified. A representative of the Royal Aero Club had been told off to provide the Press with any information desired, and, generally speaking, the organisation was fairly good. A little closer *liaison* work between the various sections of the officials would do no harm, but we are not inclined to quarrel violently with the manner in which the Whitsun Meeting was handled.

With reference to the delays caused by incoming machines, these must always be expected, and we would strongly emphasise the point that the authorities did absolutely right in refusing to let the races start until these machines had arrived. At a time when we are doing our best to convince people that aviation is safe, and trying to get them to take commercial aviation seriously, it would obviously be unwise in the extreme to let a sporting event interfere with the regular working of the London-Paris air route. Already there are a great many machines flying regularly, and one must suppose that the number will increase as time goes on.

Why Waddon at all?

The question that naturally arises, seeing that the Croydon aerodrome is bad, that it is difficult to reach for people who have to travel by train, tram, or 'bus, and that racing there is not wanted, is why use Waddon for these races? In the old days Hendon was quite good enough, and the fact remains that the gates at Hendon before the War were larger, on any ordinary Saturday, than was that at Waddon on Saturday last. Also Hendon is very much easier of access than is Waddon, the fares being approximately one-half from the centre of London, and the time taken being about one hour as compared with anything up to two hours if one travels by 'bus or tram. The aerodrome is at least as good; in fact, we think that, since the erection of the corrugated fence at Waddon, it is better, and at Hendon there is no one to interfere, or to be interfered with. Finally, when the tube is extended from Golders' Green to Hendon, as it will be fairly soon, one will be able to travel by tube direct to the aerodrome, which will mean getting there in about half an hour.

There is one reason for the retention of Waddon as the scene of the Royal Aero Club's air races, and one only, as far as we can see: A goodly proportion of the machines entered for the races are the property of, and are entered by, the Aircraft Disposal Company, to whom naturally Waddon is most handy. But we are convinced that Colonel Darby and Major Grant are far too good sportsmen to refuse to let their machines be entered just as often for races held at Hendon. The matter of flying the machines over would be nothing, and it is only in case of a breakdown that bringing the machines home would mean greater expense. The number of races in which, or as a result of which, this would be necessary would probably be quite small, and we hope

that, with so many things in its favour, this point will not prevent the racing activities of the Club from being transferred to Hendon.

The Night Flight to Paris

Another milestone in the progress of civil aviation was erected on the night between May 31 and June 1, when a twin-engined Handley Page, Rolls-Royce "Eagle" engines, made a night flight from Croydon to le Bourget, guided solely by the aerial lighthouses and by wireless. The machine was piloted by Flight-Lieut. Roche, R.A.F., who had with him as assistant pilot Flying Officer Traill, R.A.F. Two wireless operators were also on board to attend to their side of the navigation problem, and an engineer in charge of the engines. As passengers there travelled Major-General Sir Sefton Brancker, Director of Civil Aviation, Colonel Blandy, Controller of Communications, and Captain Biddlecombe, also of the Controller of Communications Branch of the Air Ministry. The machine left Croydon at 20 minutes past 10 in the evening, and arrived safely at le Bourget about 2 o'clock. Thus for the first time the entire journey between the two terminal aerodromes was made by night, and no difficulty was experienced in locating the various lighthouses at Tatsfield Hill, Surrey, Cranbrook, Kent, Lympne, Dover, Cap Grisnez, St. Inglevert, Berck, Beauvais, Abbeville and le Bourget. The weather was favourable, and it should not be concluded that night flying as a regular and commercial proposition is *immediately* possible. With improved wireless facilities and, if necessary, a few more intermediate lighthouses of minor capacity at various points over the French section of the route, there is, however, no reason why next year should not see the London-Paris services run as regularly by night as they do in the daytime. Even at present it might be possible to inaugurate a mail and parcels service to fly by night, which would add enormously to the value of the air mail, which at present offers but little advantage in point of time, owing to the times of departure, and to the delays at each end in collecting and distributing the letters sent by air mail. The flight must therefore be welcomed as one more step towards greater utility of air travel, and from that point of view it should be regarded.

BIRTHDAY HONOURS

Peers

WARING, SIR SAMUEL JAMES, Bt. Director of Waring and Gillow, Ltd., Director of the Duchess of Sutherland's Cripples' Guild. High Sheriff of Denbighshire, 1907-8. Member of Executive Committee of National Association of Ex-Soldiers. Pioneer of decorative art in furnishing. Active supporter of Boy Scout movement. Founder of Higher Production Council. Generous supporter of charities.

Baronets

BLACK, ROBERT JAMES Chairman, Mercantile Bank of India since 1906. Director of Shell Transport Company and of the London Bank of Australia. Identified with many charitable undertakings. Has been an important factor in stabilising and carrying on Anglo-Indian finance.

Knights

ILIFFE, EDWARD MAUGER, C.B.E. Director of Iliffe and Sons, Publishers. Controller of Machine Tool Department of the Ministry of Munitions. President of Coventry Chamber of Commerce. Devoted much time to hospital, municipal and local public work.

Order of the Bath

K.C.B. (Civil Division). NICHOLSON, WALTER FREDERICK, C.B. Secretary to the Air Ministry.

THE THIRD CROYDON AVIATION RACE MEETING

Good Racing but Few Visitors

EITHER the somewhat threatening aspect of the weather earlier in the day kept down the numbers visiting Croydon last Saturday, on the occasion of the Royal Aero Club's Third Aviation Race Meeting, or else the multitude was reserving Bank Holiday for its day out. However, the fact remains that the attendance at Croydon was rather disappointing.

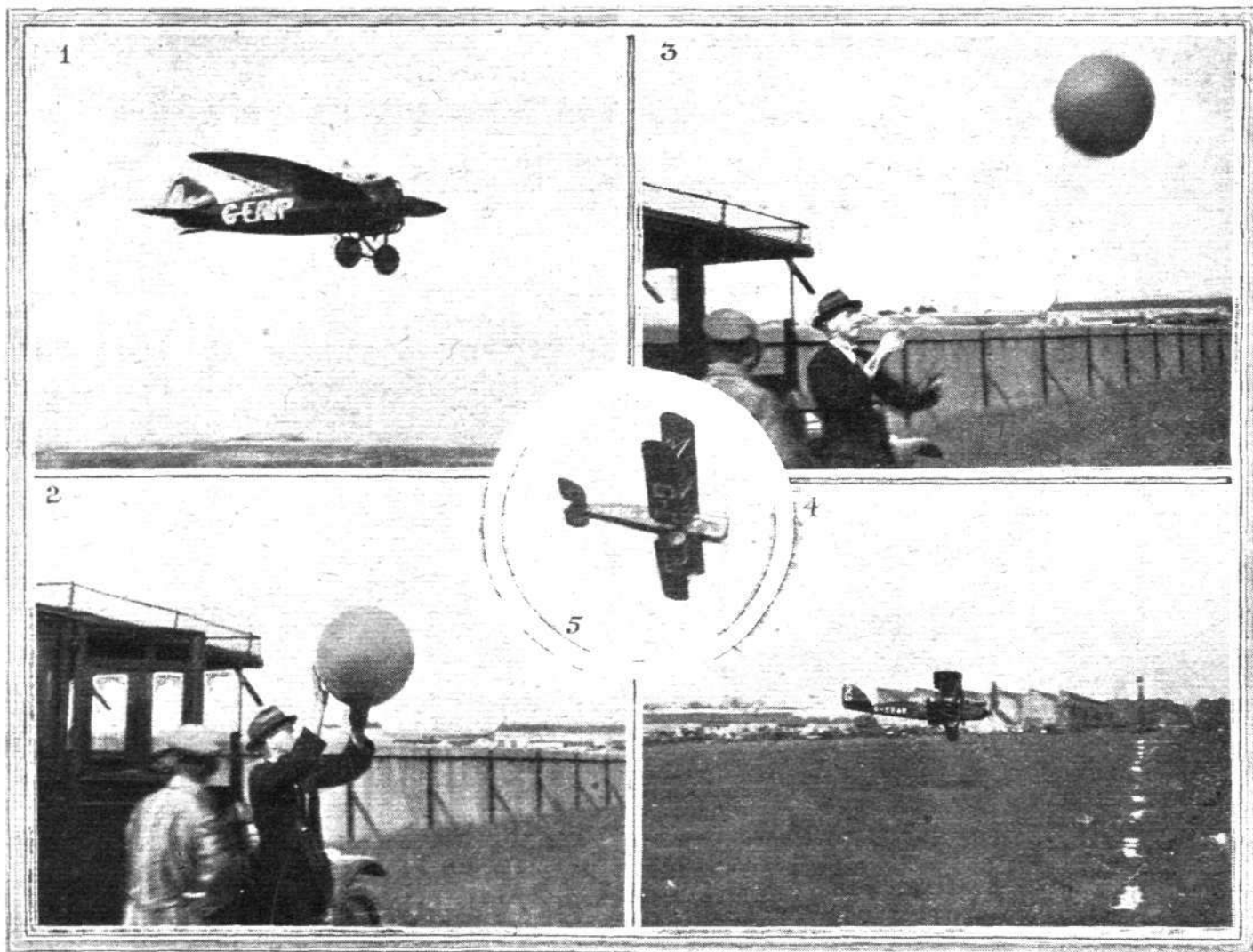
Weather conditions were, by the time the proceedings opened, ideal, a light wind blowing parallel with the enclosures, enabling the machines to start and finish to the best advantage from the spectators' point of view. Several improvements in the organisation were in evidence: numbers were prominently displayed on all the competing machines, and the officials made every effort to run off the events to time, only to be frustrated by the important but normal business of the airport. This arrival and departure of continental machines only points to the unsuitability of Croydon for these air races—but more of this, and other matters directly connected thereto, elsewhere in this issue.

As usual, the "bookies" were very much in evidence, whilst during the afternoon a loud-speaking gramophone "broadcast" selections from the opera intermingled with recitations on free insurance!

The first event down on the programme was the Third Club Handicap (first prize £20), for machines with a speed not exceeding 120 m.p.h., over a distance of about 16 miles, or two laps of the Waddon-Purley Downs Golf Club—Beddington Cement Works—Waddon course. It was timed to start

at 3 p.m., and the machines were all lined up, ready to get away, when word came through that the Bristol 10-seater from Paris was due, and so the start was delayed for several minutes in consequence. There were five starters in this event when it did ultimately get going—the Bristol, by the way, arrived in grand style, and certainly gave an atmosphere of importance to the proceedings—and these were:—(1) Lieut.-Col. Spenser D. A. Grey on 110 h.p. Le Rhône "Avro" 504K (4 mins. 20 secs. handicap), (2) Maj. H. Petre on a similar machine (4 mins. 3 secs.), (6) F. P. Raynham on the 200 h.p. Wolseley Viper-Sopwith "Antelope" cabin 'bus with full load of air (1 min. 15 secs.), (4) C. F. Uwins on the pretty little Bristol monoplane with the 100 h.p. Bristol Lucifer (50 secs.) and (5) A. J. Cobham on the De Havilland Co.'s D.H.9B, 230 h.p. Siddeley "Puma," at scratch. Lieut.-Col. F. K. McClean had entered Bert Hinkler on a 200 h.p. Avro-Viper, but only Bert Hinkler was to be seen, looking something like Little Bo-Peep, only more so. All got away in good style, and at the end of the first lap Cobham had, it was seen, considerably shortened his distance from the limit man. It was a splendid finish, Cobham swooping in across the line only half a second in front of Spenser Grey, Raynham following some 22 secs. behind. Petre came in next, and Uwins finished up last.

After this J. H. James gave a spectacular demonstration of the capabilities of the Gloucestershire Mars I, fitted with the Napier "Lion." He flew up and down before the enclosures at a speed estimated at about 200 m.p.h., and obviously



AIR RACING AT WADDON: 1. Uwins, on the Bristol monoplane, 100 h.p. Bristol "Lucifer" engine, winning the First Whitsuntide Handicap. 2. and 3. Releasing the balloons for the balloon sniping competition, which was won by Admiral Mark Kerr. 4. Alan Cobham, on a D.H.9, Siddeley "Puma" engine, winning the First Sprint Handicap. 5. Stocken on a D.H.4, Rolls-Royce "Eagle" engine, belonging to the Aircraft Disposal Company, finishing in the First Sprint Handicap.



RACING AT WADDON : Machines lined up for the start of First Whitsuntide Handicap.

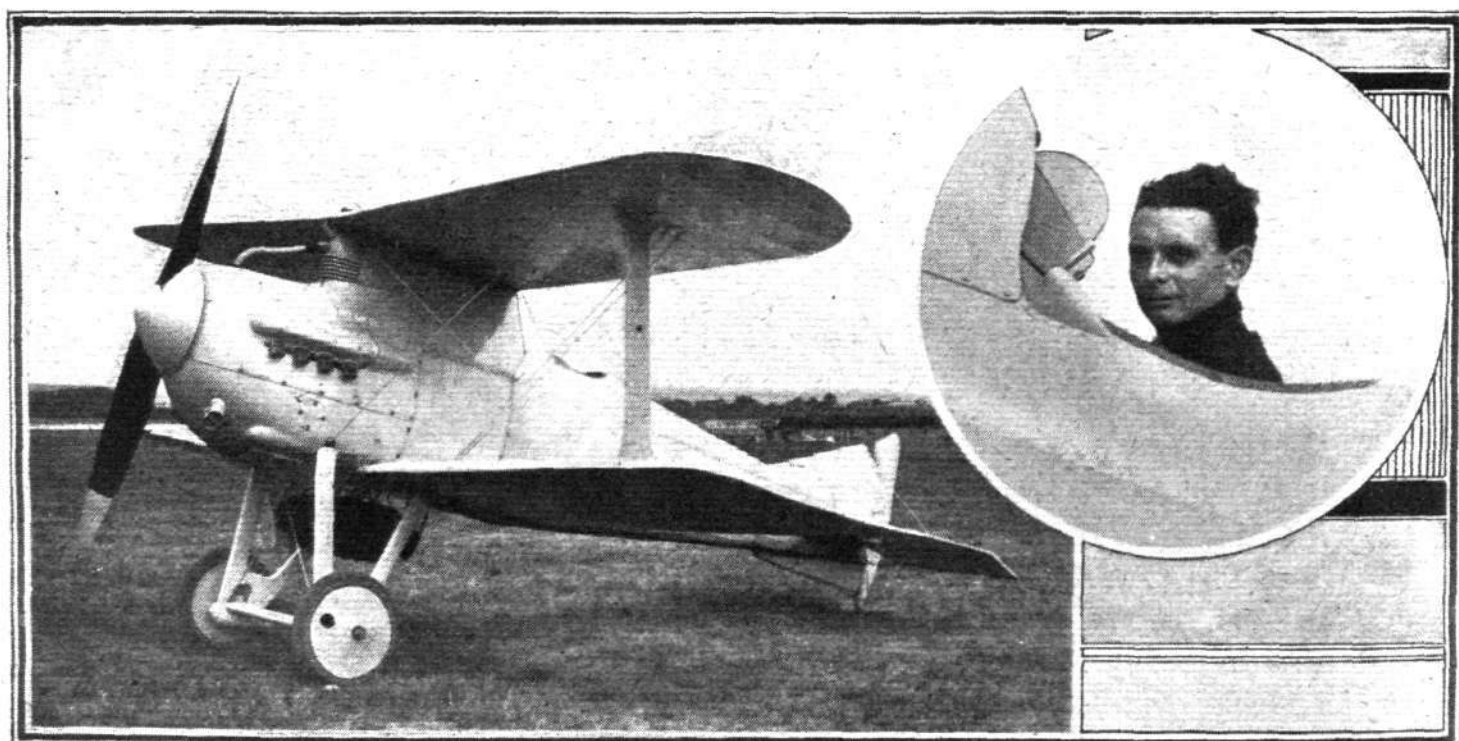
impressed the spectators. He also executed sundry sharply-banked turns, zooms, etc., and on one occasion flew past the enclosure, with the "Lion" muzzled, at what looked, in comparison, a remarkably low speed. As usual, his landing—on by no means ideal ground—was perfect.

The next event was the First Sprint Handicap (first prize £20), over one lap of the same course. In this there were four starters, as follows:—(5) A. J. Cobham on the D.H.9B (1 min. 15 secs.), (7) S. H. Hayns on a 200 h.p. Wolseley "Viper"—S.E.5A (39 secs.), R. H. Stocken on a 350 h.p. Rolls-Royce D.H.9A (26 secs.) and E. L. Foot on a 300 h.p. Hispano-Suiza Martinsyde F.4 at scratch. The last three were all entered by Maj. Grant, of the Aircraft Disposal Co. In this event Cobham maintained the lead throughout, Hayns following fairly close behind. Foot came along next, zooming skywards over the line, and then Stocken.

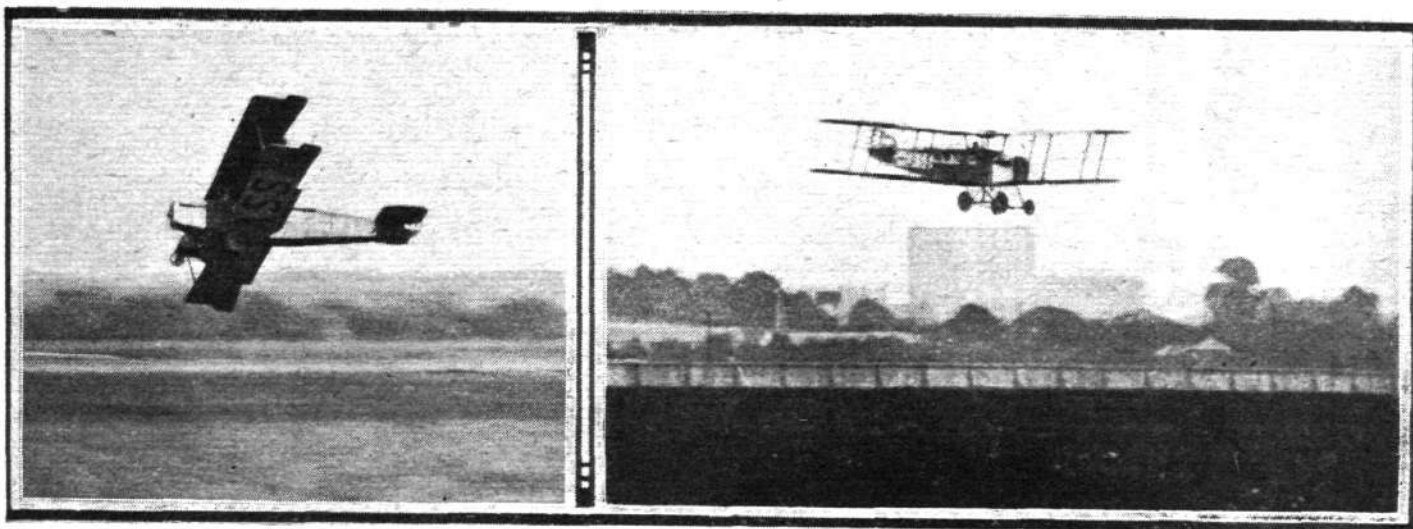
After this the Balloon-sniping Competition was held, in which, after an Avro with a sniper as passenger had received a three-minute start, three balloons were released at two-minute intervals, and these had to be destroyed in the quickest

time within 10 minutes. Admiral Mark Kerr, piloted by Raynham, the first competitor, did not waste much time in getting to work, and brought down the first balloon 3 mins. 10 secs. after taking off! He picked off the two remaining balloons almost as soon as they were released, thus securing a "possible." Two other competitors had a turn, but had difficulty, it appeared, in locating the balloons before it was too late, and neither secured a single hit.

By this time we were only ten minutes behind the hour fixed for the next event, having run off the previous events very smartly indeed; it was thus somewhat disappointing to learn that four Continental machines were due in at any moment, necessitating another delay in starting the next race. However, the opportunity was taken to make a parachute drop during the wait. Our old friend, Mr. Newall, was down on the programme for this event, but having outgrown the ordinary size Guardian-Angel, which lands him just a little faster than he likes, and as his larger-size G.A. was packed up ready for a drop up north on Bank holiday, his "understudy," Mr. R. G. Read, made the drop



THE GLOUCESTERSHIRE "MARS I," 450 H.P. NAPIER "LION," AT WADDON : Mr. James's flying on this machine was greatly appreciated, and coming down wind the machine must have been doing about 210 m.p.h. A remarkable feature of the "Mars I" is its slow landing speed, which is actually no higher than that of some commercial passenger aeroplanes in regular use on the London-Paris service. Yet its maximum speed is in the neighbourhood of 195 m.p.h. in still air, and its climb is simply marvellous.



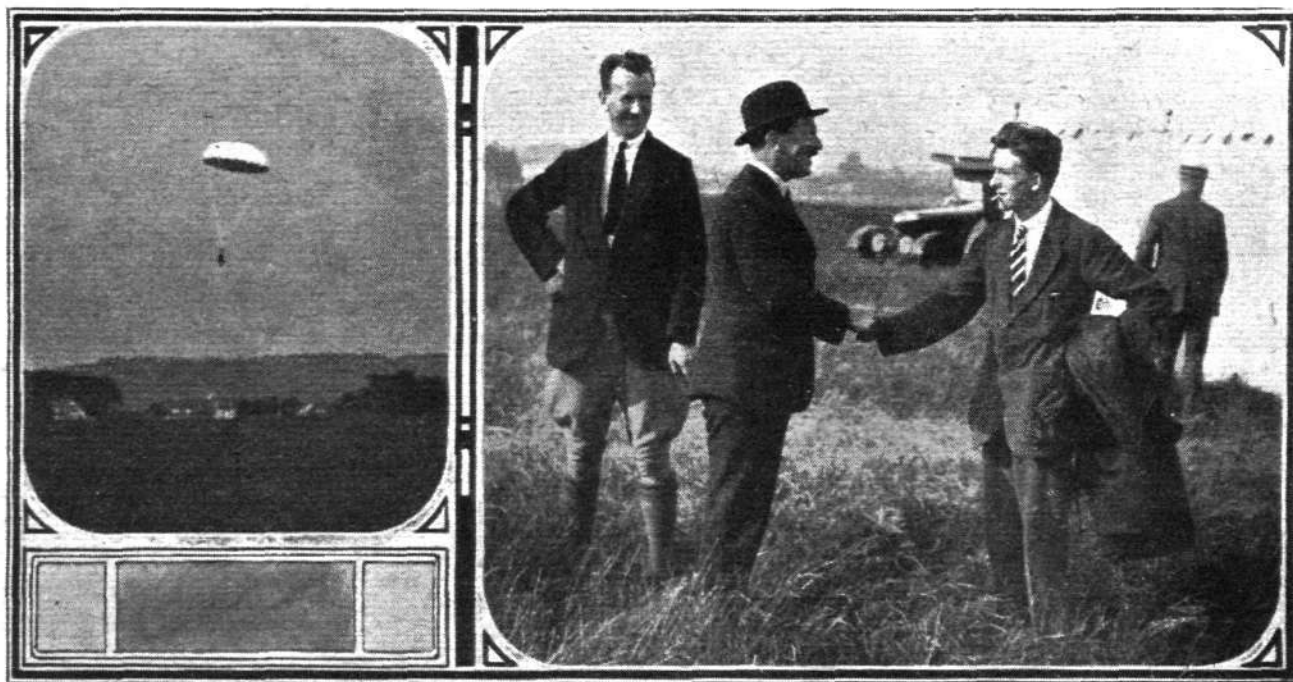
RACING AT WADDON : On the left, F. P. Raynham is starting for the Surrey Open Handicap on his Sopwith "Antelope." On the right he is seen crossing the finishing line as winner.

instead. This was successfully and gracefully accomplished from an Avro, piloted by Muir, from an altitude of about 1,000 ft.

Eventually the start was made for the First Whitsuntide Handicap (first prize £50, second £20) over three laps of the course, a distance of about 24 miles. There were six starters for this event, viz.: (6) F. P. Raynham on the Sopwith "Antelope" (4 mins. 45 secs.), (4) C. F. Uwins on the Bristol monoplane (3 mins. 44 secs.), (5) A. J. Cobham on the D.H.9B (1 min. 25 secs.), (8) R. H. Stocken on the D.H.9A (57 secs.), (9) E. L. Foot on the Martinsyde F.4 (17 secs.) and (7) S. H. Hayns on the S.E.5A (scratch). At the end of the first

By much hustling the last event of the day was started very nearly to time; this was the Surrey Open Handicap (first prize £30, second £10) over two laps of the course—16 miles. This produced eight starters and a splendid finish. Some confusion was caused at the early stage of the race as regards the relative position of the competitors, as the last starters were met by the first machines returning from the first turning-point.

The starters were as follows:—(1) Spenser Grey on the Avro 504K and (2) E. H. Alliot on a similar machine, both having the same handicap allowance (6 mins. 4 secs.), (6) Raynham on the Sopwith (2 mins. 24 secs.), (4) Uwins on



A parachute descent by Mr. R. G. Read was one of the "items" on the Waddon Whitsun Meeting Programme. Our photos. show: Left, the descent; right, Major-General Sir Sefton Brancker, Director of Civil Aviation, congratulating Mr. Read. Behind General Brancker is Capt. Muir, who piloted the machine from which the parachute descent was made.

lap all the machines crossed the line in the same order in which they started, but on the second lap Stocken and Foot both overhauled Cobham. At the finish Uwins obtained first place from Raynham, who came in second, whilst Stocken and Foot changed positions and Hayns got in front of Cobham, who came in last. Before landing Uwins executed one or two joyful loops and rolls in excellent style.

After this James gave another short but sweet exhibition on the Mars I, and immediately after Foot ascended on the Martinsyde and gave us a really beautiful selection of "stunts."

the Bristol monoplane (1 min. 48 secs.), (5) Cobham on the D.H.9B (1 min. 15 secs.), (8) Stocken on the D.H.9A (39 secs.), (7) Hayns on the S.E.5A (2 secs.) and Foot on the Martinsyde at scratch. Although Alliot lost a few seconds in getting away, he soon picked up, and managed to get ahead of Grey at the end of the first lap. The others finished the first lap in their relative positions except for Hayns, who was last. At the finish Raynham gradually overhauled Alliot, and passed him several lengths ahead on the line. Stocken came in next, followed by Foot, Hayns, Cobham, Grey and Uwins respectively.

A NEW LOW-POWER GERMAN RADIAL AIR-COOLED AERO ENGINE

The 60 H.P. Five-Cylinder Siemens-Halske

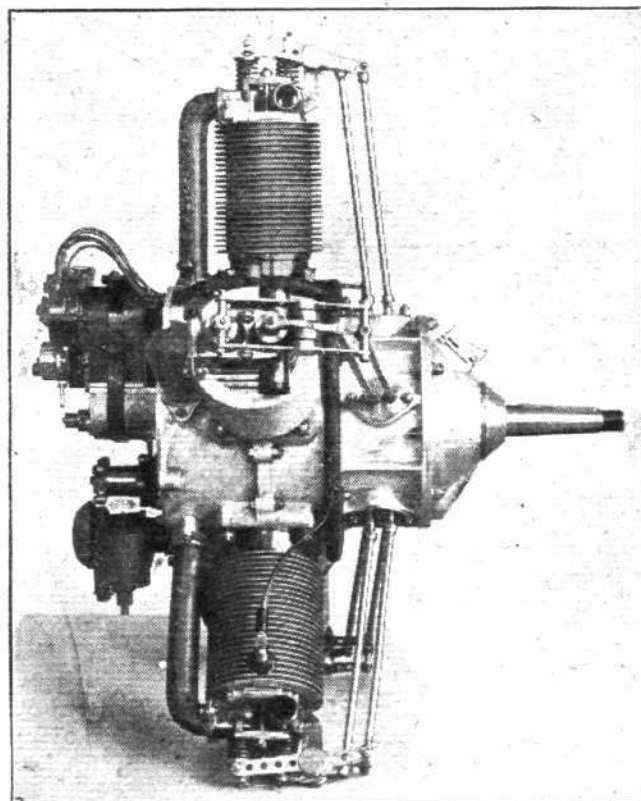
LIMITED as Germany is to the use of engines not exceeding 60 h.p. for single-seater civilian aeroplanes, there is little doubt that the next two years, after which time the position is to be reconsidered, will see considerable progress made in the efficiency of German aircraft. The conditions imposed will force Germany, if she wishes to fly at all, to make such improvements in her aircraft as will enable it to do the work required with the limited power permitted. Thus, the restrictions may very easily turn out ultimately to be blessings in disguise. While other nations continue, in the main, to rely on power and more power, for increase in performance, load carrying or whatever purpose the particular design is being used for, Germany is prevented from taking this short cut, and will, of necessity, have to effect the necessary improvements by more efficient structural and aerodynamical design.

Whether in anticipation of a limit of 60 h.p. for single-seaters we cannot say, but the fact remains that, just about the time when the latest regulations came into force (May 5) the Siemens-Halske firm, of Siemensstadt, near Berlin, completed and tested a small radial air-cooled five-cylindered engine of approximately 60 h.p. In view of the fact that, up to the present, Germany has not produced many engines of this size, it may safely be assumed that the new Siemens-Halske engine is likely to become popular in Germany in the near future. The new engine has, we understand, been thoroughly tested, and is said to have given good results. We regret that no figures of weight, revolutions, consumption, etc., are available at the moment, but the following general description may not be without interest.

As will be seen from the accompanying photographs, the Siemens-Halske engine, with but five cylinders, is of very clean appearance, and should not, with suitable cowling, offer a great deal of air resistance. It is of the four-stroke type, with two valves to each cylinder. The bore is 100 mm., and the stroke 120 mm. The cylinders are of steel, with aluminium jackets having fins machined on them for cooling. The pistons are also of aluminium, or aluminium alloy.

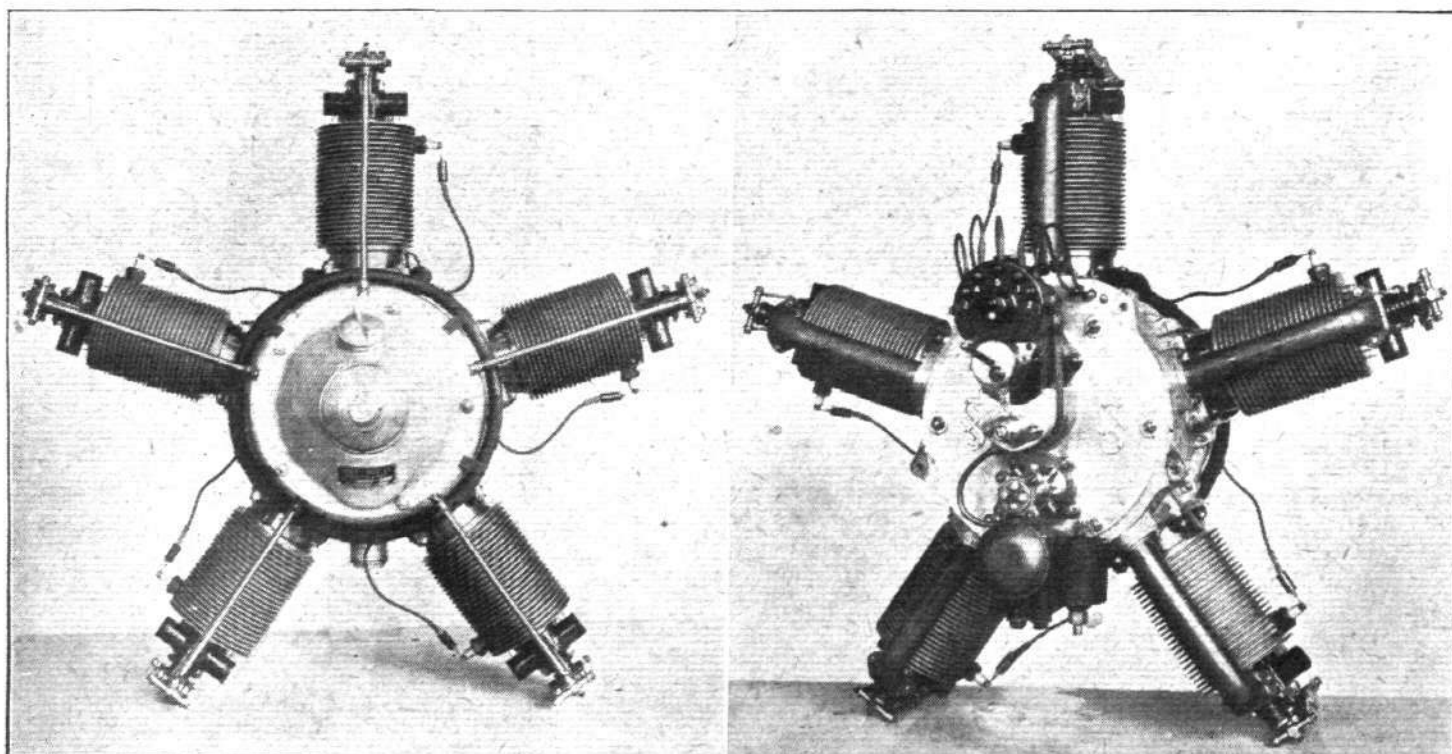
The aluminium crank-case is in two halves, and the flanged cylinder bases are bolted to it with four bolts each. As already mentioned, there are but two valves per cylinder. The inlet valve is operated by double rockers actuated by a push rod from the cam gear on the front of the engine. The exhaust valve is operated, also *via* push rods, by a single

rocker arm, placed between the two rockers of the inlet valve. All rocker arms are carried in ball bearings. The valve stem guide of the exhaust valve is situated inside a



THE SIEMENS-HALSKE ENGINE : Side view.

tubular T-piece, so that the exhaust gases escape through two openings. We believe that the manufacturers have designed a standard exhaust ring collector for this engine, so that from each exhaust valve cage, two short L-pipes run to the exhaust



THE SIEMENS-HALSKE ENGINE : Front and rear views.

ring, which is placed behind the cylinders, and from which a single exhaust pipe projects upward in the typical German style. In the accompanying photographs this exhaust collector ring is not shown.

The rear portion of the crank-case contains the induction chamber, from which the various inlet valves are supplied through straight induction pipes bolted to the crank-case, and to the inlet valve cages. In the front portion of the crank-case are housed the cam discs and the thrust race. Needless to say, the camshaft, which is in two parts, runs in ball bearings. The high tension leads to the sparking plugs are housed in a ring on the front of the engine, and a single

pipe carries all the leads from the magneto, which is mounted on a platform on the rear cover of the engine. The oil pump, which forces oil through the hollow crankshaft to the big ends, is also mounted on the rear cover of the crankcase. In its present form, the engine is provided with but one magneto, and there is only one sparking plug per cylinder, but we understand that, if desired, the manufacturers can supply the engine with complete dual ignition.

We hope that later some particulars relating to weight, r.p.m., fuel and oil consumption, compression ratio, etc., may become available, when we shall hope to publish them in FLIGHT.

■ ■ ■ ■ ■ AVIATION IN AUSTRALIA

SOME important information is contained in a report issued by the Controller of Civil Aviation (Air Ministry), giving a résumé of Commercial Aviation activities in the British Colonies and Dominions, and foreign countries. Space will not permit the publication of this report in full, but the following extracts in reference to aviation in Australia are of special interest.

Geraldton-Derby Service.—Further details are given of the fatal accident that occurred at the opening of the Geraldton-Derby service on December 5 last, and the abandonment of the service. The reason given by the contractor of the service for its discontinuation was that the Commonwealth Government had not fulfilled its part of the contract, in that the landing ground at Geraldton—which had been prepared by the R.A.A.F.—was not suitable for his machines to operate from. As the result of an inspection of the route by the Controller of Civil Aviation, accompanied by the Superintendent of Flying Operations, it was decided that the objections of the contracting company were admissible, and a basis of agreement for the resumption of the service submitted by the company was later provisionally accepted by the Controller. In this it was provided that an alternative aerodrome site at Geraldton be acquired and prepared by the Department, and an interior service, weekly in each direction, between Perth and Roeburne (about 1,000 miles) be immediately resumed—the full service between Geraldton and Derby being resumed as soon as the new aerodrome was completed.

The Perth-Roeburne Service started on February 21 last, and it was anticipated that the full service would be in operation by March 10. As a result of the inspection of this route by the Controller of Civil Aviation, additional emergency landing grounds between Northampton and Hamelin Pool were considered desirable, which, together with those already prepared, should render Australia's first subsidised aerial route (some 1,200 miles) an exceedingly safe one.

Brisbane-Sydney and Sydney-Adelaide Services.—Contracts for services between Brisbane and Sydney, and Sydney and Adelaide have been granted to Mr. F. L. Roberts and the Larkin Aircraft Supply Co., Ltd., respectively. The former has applied for permission to assign his rights to the Larkin company, who, in turn, seek to assign both contracts to a new company—the Australian Aerial Mail Service, Ltd. These services will be inaugurated early in

July, and will be maintained once weekly in each direction over a period of one year, with a subsidy of £11,500 for the Sydney-Brisbane route, and £17,500 for the Sydney-Adelaide route. The machines to be used will be three Handasyde monoplanes (pilot and six passengers); three D.H. 4 biplanes (pilot and two passengers); and one Sopwith "Wallaby" (pilot and five passengers), all of which are fitted with 360 h.p. Rolls-Royce Eagle VIII engines. Two spare engines, spares for engines and spares for machines are also provided for.

The survey and preparation of the Sydney-Adelaide route has been completed, with the exception of Adelaide, whilst it is expected to have the other route completed by July.

Charleville-Cloncurry Service.—Particulars of this service were given in FLIGHT for May 18 last, but the following additional information may be of interest. The service over this route will link up the Western terminals of the three main East-West railways, viz., Brisbane-Charleville; Rockhampton-Longreach, and Townsville-Cloncurry. The country traversed by this route is very well suited for flying, and the local governing authorities of most of the towns selected as regular stopping places have shown their practical interest in civil aviation by taking steps to establish aerodromes under their own control.

In connection with aerial reconnaissance carried out by the Controller of Civil Aviation (Col. Brinsmead), also referred to in the above-mentioned issue of FLIGHT, the following technical observations may be of interest: Whilst the machine (Bristol "Tourer") and engine (Siddeley) behaved quite well throughout the trip, a number of modifications to adapt the machine to local conditions were manifest. The fitting of an auxiliary radiator is the most important of these—shade temperatures of 110 deg. F. are common on the North-West coast. Metal-tipped propellers appear to be essential, as the low scrub, stones and sand gave much trouble with the unprotected propeller fitted. A four-bladed propeller with as small a diameter as possible would probably give the least trouble. Timber shrinkage was very noticeable, and necessitated a number of adjustments to bracing wires, and minor trouble was experienced with tyres, tubes and rubber shock-absorbers.

In conclusion, it may be mentioned that the total appropriation for Civil Aviation (in Australia) for 1921-1922 is £98,010, and the provision for "Estimated Savings" is £35,000, giving a total amount available for Expenditure of £63,010.

■ ■ ■ ■ ■ IN PARLIAMENT

Commercial Aviation

MR. W. GREENWOOD, on May 25, asked the Secretary of State for Air the amount of money we were spending to extend commercial aviation in this country, and the comparison such expenditure bears to that in Germany and Russia?

Capt. Guest: The estimated expenditure on civil aviation during the current financial year on the basis of the organisation forecasted when presenting the Estimates in £325,000. In addition, however, services on behalf of civil aviation are rendered by the Department of Supply and Research, the Controllerate of Communications, and the Meteorological Office. The German Government is giving direct assistance to the air transport industry by the payment of a subsidy of 10 marks per kilometre flown for distances under 300 kiloms., and 11 marks for distances above 300 kiloms. In addition, in 1921, a sum of 10,000,000 marks was devoted to the relief of aircraft constructional companies. The amounts set aside as subsidies for air transport in 1920, 1921 and 1922 are reported to be as follows:—

1920, 12,000,000 marks.
1921, 11,000,000 marks (and 1,000,000 marks for meteorology).
1922, 40,000,000 marks.

The Russian Government is understood to have entrusted recently the development of air lines in Russia and between Russia and Germany to a German concern, the Aero-Union Aktien Gesellschaft, with which it has co-operated in the financing of a Russian-German air transport company.

Sir H. Brittain: Can the right hon. gentleman give us any idea of the number of commercial aeroplanes operating in England as a result of that expenditure, as compared with Germany?

Capt. Guest: If my hon. friend will put a question down I will give him all the information I can.

Mr. L'Estrange Malone: Is there not a great deal of money being spent by the Admiralty which might more profitably be spent on civil aviation?

British and German Commercial Aeroplanes

SIR H. BRITTAİN, on May 30, asked the Secretary of State for Air whether he is able to give the approximate number of commercial British 'planes in actual service in this country as compared with the number of German 'planes operating in Germany?

Capt. Guest: It is not possible to draw any useful comparison between the total number of British commercial aeroplanes in operation in this country and the number of German 'planes operating in Germany, as the new Regulations (which permit of the manufacture of civil machines under certain conditions) only came into force on May 5, 1922. The total number of machines available for civil air transport in Germany is 225, including 100 old ex-military machines (which are reported to be in bad condition). It is probable, however, that the number of machines operating in Germany will increase as a result of the new Regulations coming into force. The total number of British aircraft holding Certificates of Airworthiness in Great Britain is 115. This number includes all machines used for "joy-riding" purposes and for cross-country flights with passengers or goods. The number of commercial aircraft actually in service on the London-Paris and London-Brussels routes is 18, but, in addition, occasional trips to the Continent are made with other machines.

Air Power

SIR H. BRITTAİN asked which country now possesses the most powerfully-equipped air force; and whether any country has today a greater ratio than the two-Power standard formerly held by Great Britain on the seas?

Capt. Guest: The comparative assessment of air strength for which my hon. friend asks is most difficult to calculate, depending, as it does, not only on numbers of squadrons, machines and personnel, but on relative efficiency of armament and fighting power. The general position was explained in my speech of March 21 last on the Air Estimates. I do not think it desirable or possible to compare air strength on the basis of a one-Power or two-Power standard, but the subject is too complicated to be dealt with usefully by way of question and answer.

NOTICES TO AIRMEN

Thames Estuary—Danger Area

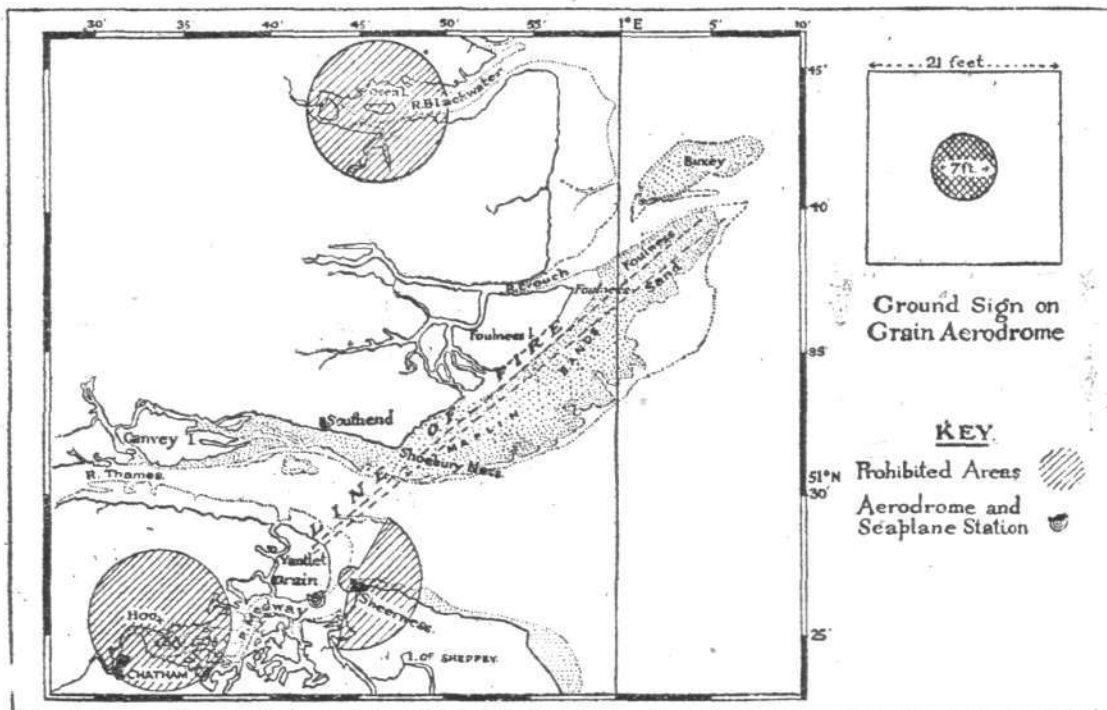
It is notified: 1. *Yantlet Artillery Range*.—Artillery practice, which takes place at irregular times on the Yantlet range, forms a danger to aircraft over an area extending across the mouth of the Thames from Yantlet (Lat. $51^{\circ} 28' N.$, Long. $0^{\circ} 42' E.$, approx.), about 2 miles N.W. of Grain

signal consists of a white square, each side measuring 21 ft., having in the centre a red disc, 7 ft. in diameter, as shown on the sketch.

(No. 51 of 1922.)

Aerodromes for Civil Use—Amendments

NOTICE to Airmen No. 35 of 1922 (Consolidated List



Aerodrome, to the N.E. extremity of Foulness Sand (Lat. $51^{\circ} 40' N.$, Long. $1^{\circ} 5' E.$, approx.), as shown on the appended sketch.

Pilots should, therefore, so far as possible, avoid this part of the Thames Estuary.

2. *Warning Signal at Grain*.—When firing is in progress, a ground signal will be displayed on Grain Aerodrome, $1\frac{1}{2}$ miles W. of Sheerness (Lat. $51^{\circ} 26' N.$, Long. $0^{\circ} 43' E.$) This

of Aerodromes) is amended as follows:—List C. *Licensed Civil Aerodromes*.

(a) *Civil Aerodromes licensed for all types*:

Ensburry Park, Bournemouth, should be deleted.

(b) *Civil Aerodromes licensed as "suitable for Avro 504 K and similar types of aircraft only"*:

Gwaun-cae-Gurwen should be added.

(No. 52 of 1922.)

THE LONDON-CONTINENTAL SERVICES FLIGHTS BETWEEN MAY 28 AND JUNE 3, INCLUSIVE

Route†	No. of flights*	No. of passengers	No. of flights carrying		No. of journeys completed†	Average flying time	Fastest time made by	Type and (in brackets) Number of each type flying
			Mails	Goods				
Croydon-Paris ...	63	162	25	44	62	2 44	D.H. 34 G-EBBS (2h. 4m.)	B. (4), Br. (1), D.H. 4 (1), D.H. 18 (2), D.H. 34 (3), G. (8), H.P. (1), H.P.W. 8B (1), Sp. (4), V. (1), W. (1).
Paris-Croydon ...	63	173	9	35	61	2 36	D.H. 34 G-EBBS (2h. 0m.)	B. (4), Br. (1), D.H. 4 (1), D.H. 9 (1), D.H. 18 (3), D.H. 34 (3), G. (7), H.P. (1), H.P.W. 8B (1), Sp. (3), V. (1), W. (1).
Croydon-Brussels ...	5	9	4	4	5	2 37	D.H. 34 G-EBBT (2h. 20m.)	D.H. 4 (1), D.H. 18 (1), D.H. 34 (2), W. (1).
Brussels-Croydon ...	5	10	—	3	4	2 24	D.H. 34 G-EBBR (2h. 7m.)	D.H. 4 (1), D.H. 18 (1), D.H. 34 (2), W. (1).
Croydon-Rotterdam-Amsterdam.	12	13	12	11	12	2 45	Fokker H-NABQ (2h. 21m.)§	F. (7).
Amsterdam-Rotterdam-Croydon.	12	12	12	10	12	2 21	Fokker H-NABS (2h. 19m.)§	F. (6).
Totals for week ...	160	379	62	107	156			

* Not including "private" flights.

† Including certain diverted journeys.

‡ Including certain journeys when stops were made *en route*.

§ Rotterdam.

Av. = Avro. B. = Breguet. Br. = Bristol. Bt. = B.A.T. D.H.4 = De Havilland 4, D.H.9 (etc.).
F. = Fokker. Fa. = Farman F.50. G. = Goliath Farman. H.P. = Handley Page. M. = Martinsyde. N. = Nieuport.
P. = Potez. R. = Rumpler. Sa. = Salmson. Se. = S.E.5. Sp. = Spad. V. = Vickers Vimy. W. = Westlan

Incidental Flying.—Capt. Barnard and Capt. Stocken were out testing sundry machines for the Aircraft Disposal Co., including an Avro, D.H. 9, and Martinsyde. Mr. Hayns was also out on an S.E. 5a.

LONDON TERMINAL AERODROME

Monday evening, June 5.

THERE was a welcome influx of passengers during the week-end, but on the whole there is still a shortage on last year's totals. Airway managements are beginning to express the opinion that the recent accidents are responsible for the dearth of passengers. The situation, at any rate, is now becoming acute. Several air-line employes, engaged with the idea that they would be needed in order to cope with a heavy traffic, have been discharged. There is now a movement on foot to induce the Air Ministry to return to the old subsidy of so much a completed trip instead of, as at present, so much on actual load carried. It is to be hoped, however, that the Air Ministry will refuse to comply with this suggestion, as it would stifle all initiative and lead to wasteful extravagance and inefficiency.

A fatal accident, in which three lives were lost, occurred on Saturday. A "Spad," owned by the Messageries Aériennes, and carrying two passengers, nose-dived into the Channel when about three miles off Folkestone, hitting the water with such force that the pilot and his two passengers were killed instantly. The passengers had booked by Daimler Airways, but, owing to the fact that the one remaining D.H.34 of this firm was temporarily unavailable, they were transferred to the "Spad." The pilot, M. Morin, has had considerable experience on the cross-Channel service. It is thought by airway experts at the air-station that he was overcome by some sudden indisposition, probably due to the heat, and that, robbed of his controlling hand, the machine dived headlong into the sea. One of the passengers, Dr. Gordon Ley, was well known on the airways, having been a constant aeroplane traveller since "Airco" days.

Awkward Forced Landing on the Brussels "Airway"

MR. BRADLY, of the Instone Air Line, had an unpleasant experience in Belgium on Monday last. Soon after leaving Brussels, piloting a D.H.18, one of the connecting-rods of the engine broke, and tore through the crank-case. Mr. Bradley glided down to alight, the district being particularly bad for forced-landing, and, choosing the largest field he could see, managed to land safely in spite of numerous barbed-wire fences which it was impossible for him to see from the air. Before the machine actually pulled up, however, it struck a wooden rubbing-post, which had been erected in the middle of the field for cattle to rub against. The collision so damaged the machine that it had to be dismantled and carted to Brussels for repairs and re-erection.

On Wednesday night Maj.-General Sir W. S. Brancker made the first commercial night flight to Paris in a Service Handley Page 0-400, piloted by Flight-Lieut. Roach. Col. Blandy, Director of Communications at the Air Ministry, and Capt. Biddlecombe accompanied Gen. Brancker. Practically all the illuminations at the aerodrome were working, and one searchlight was throwing its beam into wind in order to provide an illuminated path down which the machine could get off. Lieut. Roach, however, disdained such aids to night-flying, and, without troubling to get on to the illuminated section of the aerodrome, took straight off. The visibility was quite good throughout the journey, and each light along the route was picked up long before the one in the immediate vicinity of the machine was lost sight of. The journey to Paris was, in fact, made with as much ease as if it had been daylight. Maj.-Gen. Brancker returned to London by boat and train on Thursday, and the machine flew back during the day.

New Fokker Monoplane of Unusual Design

I UNDERSTAND that Fokker is building a new 12-passenger monoplane, in which he is incorporating the novel idea of additional wing area for extra loads. The machine is normally a monoplane, but when it is required to carry an extra heavy load this can be accomplished by adding two small and easily-fixed wings to the machine, turning it into a sort of hybrid "monoplane-biplane." I hear, furthermore, that in future all monoplanes built at the Fokker works are to have the wing raised above the fuselage with a gap between the top of the fuselage and the bottom of the wing. This, it is stated, gives increased lift, in addition to allowing the pilot a good view to the rear. The K.L.M. had a record weight of air-parcels-post on Saturday, the total being 95 lbs. This seems to show that on this route, at any rate, there is some chance of the air-parcels-post providing really satisfactory loads in the not-too-distant future.

Handley Page Transport have been carrying quite good loads during the week. They have now obtained delivery of their third W.8B.

Famous French "Ace" at Croydon

CAPT. PINSARD, a very well-known French flying "ace," arrived at the aerodrome on Wednesday during a Paris-Brussels-London-Paris flight in connection with the Lamblin Cup. He succeeded in beating all previous competitors, accomplishing the round trip of, roughly, 600 miles (with half-hour stops at Brussels and Croydon) in 5 hrs. 45 mins.

The Daimler Airways still continue to run two services in each direction daily with one machine, and the regularity of this service, considering the difficulties, is really remarkable. They are still suffering, however, from a lack of passengers, and I understand that their idea of a revised subsidy is that a guarantee of a 50 per cent. load should be given. This would mean that, in order to make the service pay, machines and all other items in the service would have to be run efficiently, and waste of every description eliminated.

First Vickers "Vulcan" on Paris Service

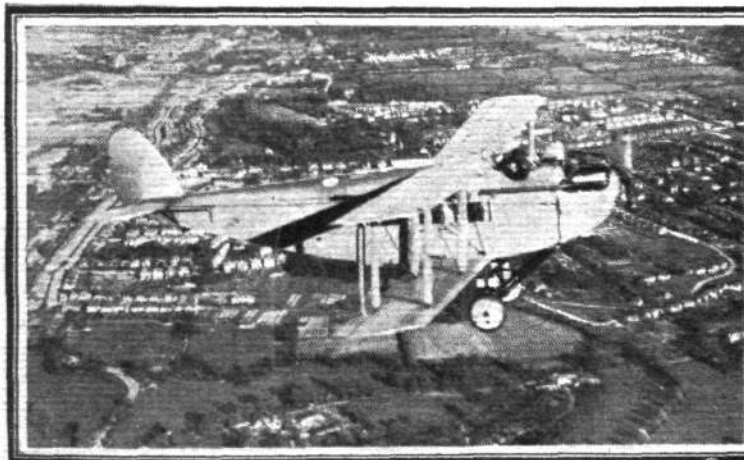
THE Instone Air Line have now secured delivery of the first Vickers "Vulcan." Capt. Barnard flew it to Paris with six passengers on Thursday, and the machine got off very well. The most remarkable feature of the machine, however, is its slow landing speed, which delights all pilots at the aerodrome.

Traffic on the French air-lines consists, in the main, of goods, and there is no gainsaying the fact that what goods-traffic there is goes by the foreign lines. Goods traffic on the British lines forms a very insignificant proportion of the general total.

On Whit Monday air passenger figures were, generally speaking, disappointing, although the weather was so fine.

During the week-end, however, Capt. Muir was busy with joy-riders, while it was noticeable that there were large numbers of the public in the free enclosure to watch this joy-riding, and also the departures and arrivals of the continental "air expresses."

Mr. MacIntosh was a busy man on Monday, having two tasks on hand at the same time. One of these was to test the new Handley Page W.8B; the other was to play in a cricket match for Wallington, whose field is just at the bottom of Plough Lane, near the aerodrome. Mr. MacIntosh was, one might say, in the air one minute and the next engaged ardently in cricket. It is a tribute to his energy that he carried out both efforts successfully.



IN FULL FLIGHT: Two views of the D.H.34, 450 Napier "Lion" engine.

A STRENGTH CALCULATOR FOR AEROPLANE DETAILS

A Handy Slide Rule for the D.O.

[ALTHOUGH there is in modern design a tendency towards a reduction, or the total suppression, of bracing wires, with their lugs, bolts, pins, etc., we shall probably still be using wires, streamline or otherwise, in aircraft for a number of years to come. This means a considerable number of

calculations of sizes for wiring lugs, bolts, etc., and any instrument which enables the draughtsman to make these calculations rapidly and accurately is entitled to consideration. Such an instrument is the slide rule calculator invented by Mr. Charles Blazdell, who has very kindly sent us the following description of his instrument.—Ed.]

The calculator herein described is intended for use in the drawing office when deciding the sizes of such details as wiring lugs, bracing attachments, bolts, pins and such like parts carrying loads in new designs of aircraft, or for checking the strengths of parts already designed. Though much has been done in the way of standardisation of such fittings, special circumstances constantly arise which necessitate departure from standard, and consequently involve calculations for strength.

By means of this instrument such questions as the following can be determined without calculation by one movement of the slide:—

- (1) The necessary width of a wiring lug in any gauge of plate, for any given load, when made in material of any given strength.
- (2) The pin diameter as determined by the given permissible bearing pressure in any thickness of plate.
- (3) The strength in single or double shear of pins and rivets in material of any shear strength.
- (4) The safe load and ultimate tensile strength of bolts, with the shear strength of the plain and threaded portions.

The scales are divided direct in fractional parts of an inch, and standard wire gauge numbers as generally employed on drawings, and bolts are given in B.A. and B.S.F. sizes. It is, therefore, unnecessary to convert drawing sizes to decimals, nor to refer to tables of wire gauge sizes or screw-thread core diameters, as results are read direct in the units usually used on drawings. As shown in the illustration, the calculator is a simple form of slide rule—the two upper scales on the front face reading direct in fractions of an inch from $\frac{1}{16}$ in. to 3 ins., and in wire-gauge numbers from 30 S.W.G. to $\frac{1}{16}$ in. The two lower scales are graduated for any strength of material from 10 to 100 tons per square inch, and any load from 500 to 30,000 lbs. Two scales read through the back of the rule are provided, the upper scale, divided in $\frac{1}{32}$'s of an in. from $\frac{3}{32}$ in. to $\frac{1}{2}$ in. diameter, dealing with pins and rivets, the lower scale, marked direct in B.A. and B.S.F. thread sizes from 4 B.A. to $\frac{7}{8}$ in. B.S.F., being used for bolts.

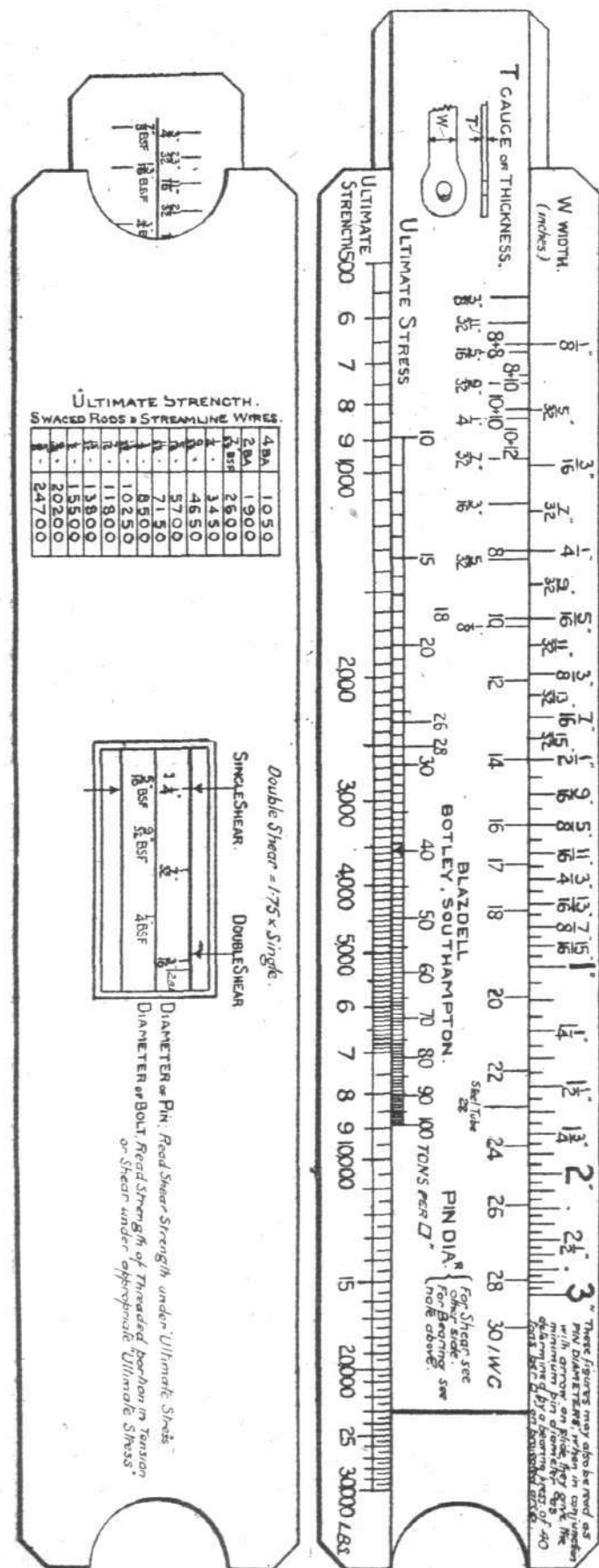
A table on the back of the rule gives the ultimate strengths of all B.E.S.A. swaged rods and streamline wires, and the strengths of materials to B.E.S.A. Specifications in common use are specially marked on the scales.

A considerable saving of time and labour as compared with an ordinary slide rule results from the employment of this calculator on problems within its scope, the special division of the scales rendering the reading of the result both quick and easy.

The Writing in the Sky

THIS week has witnessed the first practical application of the invention of Major J. C. Savage, by means of which chemical smoke trailing from an aeroplane can be used for writing words or tracing figures in the sky. Capt. Cyril Turner, who will be remembered as one of the pilots of the B.A.T. firm, has been flying the machine in which the apparatus has been installed. His first "sky sign" took the form of the word "Castrol," the famous aero-engine lubricant. Later in the week he repeatedly wrote the words "Daily Mail" across the sky. We would suggest that it might be well worth the trouble and expense of the Air League to get in touch with Maj. Savage, with a view to getting Capt. Turner to undertake a propaganda campaign by writing, day after day and in various localities of the kingdom, "Wake up, England." In that way the public would have brought home to them the urgent need for a revision of our air policy.

Apart from the publicity value of this new air "stunt," it would appear to have possibilities of scientific application. For instance, it might be possible to install the smoke-producing apparatus in the nose of an aeroplane and let the smoke pour over the machine, meanwhile photographing or "filming" the paths followed by the smoke over various parts of the machine. In this manner it might be possible to get a lot of valuable information about downwash and its effect on the tail of a machine, the effect of slip-stream and so forth. If that be feasible, the scientific value of Maj. Savage's invention may well prove far greater than its application to advertising.



THE LONGREN TWO-SEATER BIPLANE

It cannot be said that American designers have neglected the moderate-priced, low-to-medium-powered aeroplane, for the efforts in this direction, have been numerous. Such machines, it should be noted, are particularly suitable—especially when of the easy-to-fly-and-maintain type—for countries like the States and Canada, where vast tracts of land unserved by regular transport services, ranches, scattered farms, and the like prevail; communication, inspection, and various duties connected with these conditions can easily be carried out by means of the type of machine in question.

One of these machines developed in the U.S.A. is the Longren, described and illustrated herewith. It was designed and built by the Longren Aircraft Corporation of Topeka, Kansas, as a business and pleasure vehicle of moderate price (\$2,465) for the individual owner—or owner-pilot. Besides several novel constructional details, low cost of upkeep

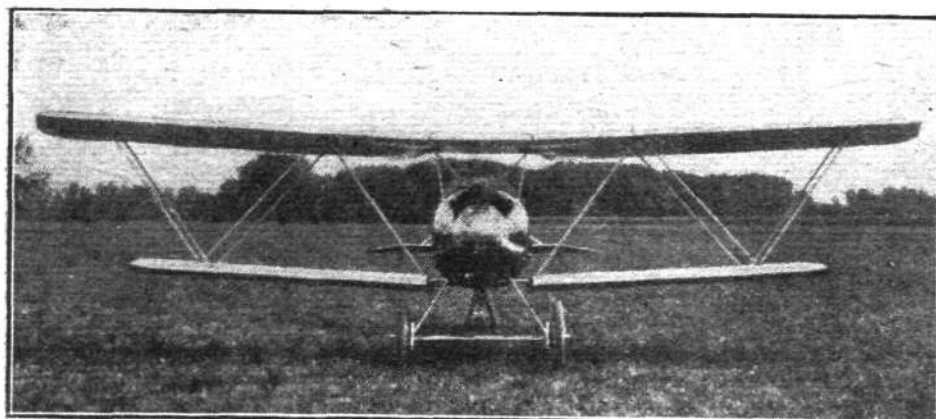
The *ailerons*, which are fitted to the top plane only, are also interchangeable, and are actuated by a torque tube within the wing and with the operating arm in line with the rear hinge of the wing. Swivels are provided on the arms to allow the wings to fold without affecting the controls. The centre section is supported by four short struts and braced in front by streamline straps, and by a V-tube at the rear.

By the employment of the Warren system of interplane trussing, it is possible to fold the wings without disturbing the setting of the latter or the controls, and no adjustments, or rigging, is necessary, after each operation of folding. The unlocking and removal of four pins is all that is necessary to fold the wings, which when folded back are braced to the *fuselage* with tubes provided for the purpose. Thus, when the machine is being towed over roads or rough ground the wings are fixed securely against shocks, and are thereby unlikely to be damaged or strained.

The tail surfaces are made thick enough to require a minimum of bracing, only two struts being used and no wires. The horizontal stabiliser is of the divided type, the halves being interchangeable, as are the elevators. The leading edges of the latter, and also those of the rudder and *ailerons*, serve as operating torque tubes, as well as front spars. The elevator controls are entirely enclosed in the *fuselage*, and the rudder control has a short arm, and only a very short length of wire exposed.

A tail skid of neat and compact design is fitted consisting of a steel leaf spring, faired, and fastened to the lower *longeron*, directly under the last transverse rib. The compression load of the skid is carried by a Duralumin compression plate.

A Lawrence 60 h.p. three-cylinder (air-cooled) radial engine is fitted, being bolted directly to the substantial plywood nose panel of the *fuselage*, giving a strong and simple mounting. The engine is enclosed, except for the cylinder heads, by a metal cone-shaped cowl.



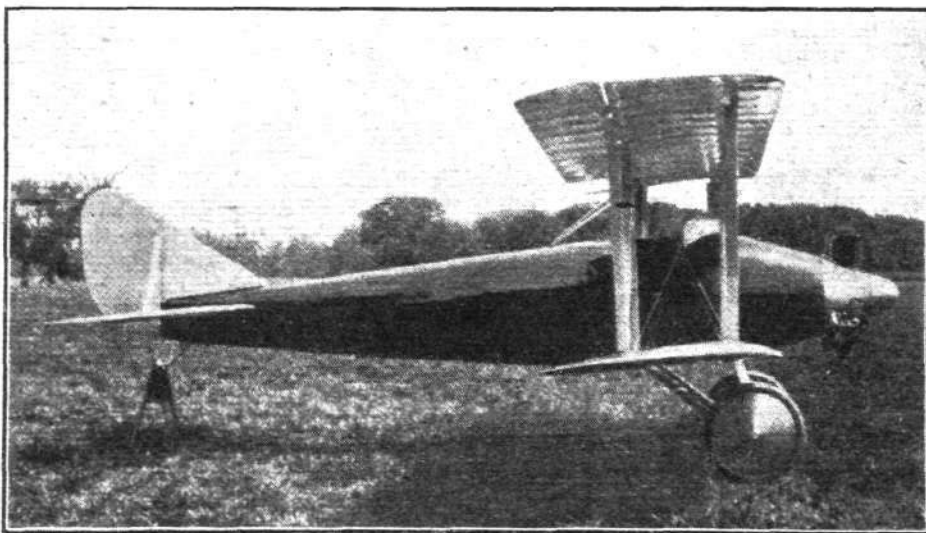
Front view of the Longren two-seater biplane, showing the Warren-type interplane trussing.

and operation, small housing space, and facility for obtaining spare parts—all parts are numbered, listed and a full stock always available—are the main features of this machine.

The Longren is a two-seater side-by-side tractor biplane, with its wings arranged to fold back. The *fuselage* is made of hard vulcanised fibre, moulded to a good streamline form. The fibre is fastened, at the top and bottom centre lines, to two ash *longerons*, and is reinforced with laminated ash ribs, giving an exceptionally strong and rigid assembly that is resilient and shock resisting. This fibre has a strength-weight ratio that is claimed to be double that of plywood or veneer, and it cannot be shattered or splintered. A combustion point of 650° F. is another of its advantages over wood, or fabric-covering, and it is thus practically fire-proof. After assembly, the *fuselage* is water-proofed inside and out.

The cockpit is immediately beneath the top plane centre section, and is entered by way of a door in the side of the *fuselage*. This door is so designed that the *fuselage* is not weakened at this point, where it is reinforced with ash ribs. The pilot's and passenger's seats are of comfortable width, and well upholstered. Standard stick and foot-bar control are fitted, and are arranged to leave no moving parts exposed, making a clean and roomy cockpit, where there is no danger of clothing, etc., catching on any part. In front of the cockpit is an aluminium instrument board, containing a tachometer, altimeter, clock, map case, petrol gauge, oil pressure gauge, motor meter switch and throttle lever. A space is provided under the seat for baggage.

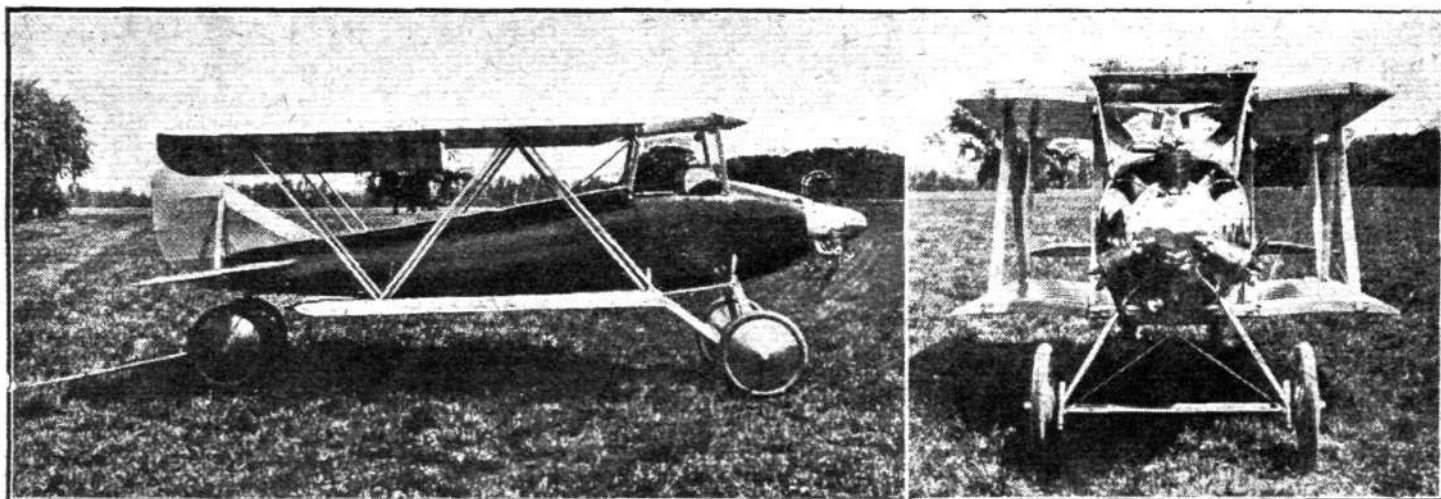
For the main planes the U.S.A. No. 2 wing section, slightly modified, is used, a section giving very satisfactory results with a machine of this type. The top plane consists of two outer sections, and a short centre section; the lower plane is in two sections only. The main spars are built-up I-section spruce, and the ribs are made with ply-wood webs and ash cap strips. The fittings are standardised, and interchangeable.



Side view of the Longren two-seater biplane, fitted with a 60 h.p. Lawrence engine.

A simple V-type landing gear is fitted, the lower ends of the streamlined struts terminating in Duralumin shock-absorber housings. The axle fairing is given a lifting section, and its leading edge forms the compression member connecting the V's, whilst the trailing edge is attached to the axle and rises and falls with it: both leading and trailing edges are of Duralumin. The chassis is braced by streamline wires.

The Longren flies and handles well, and during the American Legion Flying Meet, held at Kansas City, Mo., last November, one of these machines won the looping contest (38 loops), and at the Omaha Meeting it also won the considerable distinction.



A side and front view of the Longren two-seater biplane with the wings folded back.

The principal characteristics of the Longren two-seater biplane are:—

Span (upper)	27 ft. 11 ins.
" (lower)	21 ft. 11 ins.
Chord	4 ft. 3 ins.
Gap	4 ft. 3 ins.
O.A. length	19 ft.
O.A. height	7 ft. 8 ins.
Width folded	9 ft. 8 ins.
Incidence (upper)	3°.
" (lower)	2°.
Dihedral	3°.

Wing section	U.S.A. 2 (mod.)
Stabiliser incidence	1½°.
Area, main planes (inc. ails.)	189 sq. ft.
" ailerons (2)	191.1 sq. ft.
" stabiliser	13.5 sq. ft.
" elevators	11.4 sq. ft.
" fin	2.6 sq. ft.
" rudder	5.6 sq. ft.
Weight (empty)	550 lbs.
" (loaded)	1,050 lbs.
" /h.p.	17.5 lbs.
" /sq. ft.	5.55 lbs.

R.A.F. Club

THE Royal Air Force Club has decided to hold an annual Cricket Week during September of this year.

It is a new departure in Club convention, but that it meets with approval is shown by the fact that the Week is to be held under the distinguished patronage of H.R.H. The Duke of York, K.G., with Viscount Cowdray (President of the R.A.F. Club) as President and the Secretary of State for Air, Captain F. E. Guest, D.S.O., M.P., and the Chief of the Air Staff, Air Chief Marshal Sir Hugh Trenchard, Bart., K.C.B., D.S.O., as Vice-Presidents.

The affair will be a combined social and sporting event. Two three-day matches will be played, and these will in all probability be (1) a revival of the old North v. South match, and (2) the Royal Air Force (Past and Present) v. the M.C.C. Touring Side leaving for South Africa. The R.A.F. Club propose including the services of two or three ex-R.A.F. professionals, and it is understood that Hobbs, Woolley and Strudwick will play. The amateurs who are members of the Royal Air Force Club include, amongst many others, such players as P. G. H. Fender, Hon. F. Calthorpe, A. H. H. Gilligan, Sqdn.-Ldr. Blount, S. L. Amor, B. S. Foster and E. Martin. The Hon. L. H. Tennyson has consented to lead the opposition.

The Club Committee responsible for the event consists of Messrs. Air-Commodore Halahan (Chairman), Hon. F. Calthorpe, P. G. H. Fender, H. D. G. Leveson-Gower, Major Young, and Captain M. G. Kiddy (Hon. Secretary) to whom all communications should be addressed at 24, Denison House, 296, Vauxhall Bridge Road, S.W. 1. (Phone: Victoria 2112).

Play will be by invitation only, but at the same time the Hon. Secretary would be glad to hear of the names of all first-class amateurs or professionals who served in or were attached or seconded to the Royal Flying Corps, Royal Naval Air Service, or Royal Air Force, who will be free during the month of September.

The Lamblin Cup

CAPT. PINSARD, on a Nieuport monoplane with 300 h.p. Hispano-Suiza engine, has put up a fine performance for the Coupe Lamblin. Leaving le Bourget at 9.45 a.m. on May 31, he landed at Brussels at 11.32, and at Waddon at 1.49 p.m. Paris was reached at 3.30 p.m., his total flying time being 4 hrs. 30 mins. 30½ secs. As a single-engined, single-seater machine, with an engine of between 200 h.p. and 400 h.p., the Nieuport would, under the rules of the competition, get a start of 15 minutes over the scratch machines, which are single-engined single-seaters with engines of 400 h.p. or more. Thus for the time being Capt. Pinsard is the holder of the Lamblin Cup.

R.A.F. Groves Prize Awards

THE Air Ministry announce that the awards in the 1921 competition for the R. M. Groves Memorial Essay on "A Forecast of Aerial Development," open to all members of the Royal Air Force, are as follows: First Prize (£30 and books), Wing-Commander C. H. K. Edmonds, Staff College, Andover; Second Prize (£20 and books), Wing-Commander R. H. Verney, Cadet College, Cranwell; Third Prize (£10 and books), Flight-Lieut. W. P. Groves, British Delegation, Air Section, Paris.

A special prize of £10 for the best imaginative *résumé* on "Aviation in the Next World War," has been awarded to Flight-Lieut. W. P. Groves, winner of the third prize.

The Memorial Essay, it will be remembered, was established by the family of the late Air-Commodore R. M. Groves, who died in Egypt in 1920, as the result of an aeroplane accident. The essays are required to be divided each year into three parts, the first relating to Imperial defence, the second in relation to Civil Aviation, Exploration, etc., and the last to an imaginative *résumé* on Aviation and the next World War.

French Airworthiness Certificates

THE Air Ministry on June 6 issued the following announcement:—

"In view of the statements appearing in certain portions of the Press this morning regarding the cross-Channel air services, the Air Ministry feels it necessary to state that it regards the allegation that existing French machines would not be permitted to fly if they were British owned as quite unwarranted. As a signatory of the Air Convention, Great Britain has agreed to recognise French certificates of airworthiness for French passenger aircraft, and although the French system of certification and inspection differs from that established in this country, there is at present no reason to suggest that it is any less efficient than our own.

"The safety of passengers travelling by air is, of course, always one of the first considerations of the Air Ministry, and every endeavour has been and will be made to co-operate with the French and other Governments to that end."

Siam Tries an "Air" Lottery

FAILING to obtain the necessary grant for the development of her Air Service, Siam is holding a million tical lottery as an alternative method of getting things aerial going. Fifty thousand pounds will be distributed in prize-money, and the Air Service will benefit by the same amount. The first prize will be £10,000.

Siam's Air Force consists of 115 aeroplanes and a staff of 650. There are five aerodromes and 25 prepared landing-places in the country.

THE ROYAL AIR FORCE

London Gazette, May 30, 1922

General Duties Branch

Pilot Offr. C. C. K. Bloxam resigns his short service commn. ; May 31.

Stores Branch

J. S. Griffiths is granted a permanent commn. as a Flying Offr. for Accountant duties, with effect from March 5, 1921 (substituted for *Gazette*, March 15, 1921).

Medical Service

W. D. Miller, M.B., is granted a short service commn. as a Flight Lieut.,

with effect from and with seny. of May 15. F. W. Squair, M.B., T.D., is granted a temp. commn. as a Flight Lieut. (Hon. Squadron Leader), with effect from and with seny. of May 16.

Memoranda

Two Cadets are granted hon. commns. as Sec. Lieuts., with effect from the dates of their demobilisation.

Capt. A. Brind relinquishes his temp. commn. on account of ill-health contracted on active service, and is granted the rank of Maj. ; Nov. 6, 1919 (substituted for *Gazette*, Nov. 14, 1919).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

Air Vice-Marshal J. F. A. Higgins, C.B., D.S.O., A.F.C., from R.A.F. Depot (Inland Area) to Headquarters (Inland Area), for duty as Air Officer, Commanding vice Air Vice-Marshal Sir J. M. Salmond, K.C.B., C.M.G., C.V.O., D.S.O. (May 26).

Group Captain A. B. Burdett, D.S.O., from Inland Area Aircraft Depot (Inland Area), for duty with British Section, Inter-Allied Aeronautical Commission of Guarantee, Germany (May 5).

Wing-Commander J. R. W. Smyth-Pigott, D.S.O., from Inter-Allied Aeronautical Commission of Control (Germany), for duty with British Section, Inter-Allied Aeronautical Commission of Guarantee, Germany (May 5).

Squadron Leaders.—J. H. Herring, D.S.O., M.C., from No. 7 Group Headquarters (Inland Area), for duty with British Section, Inter-Allied Aeronautical Commission of Guarantee, Germany. 5.5.22. A. C. Maund, C.B.E., D.S.O., from Aeroplane Experimental Establishment (Coastal Area), to command No. 31 Squadron (India). 6.5.22. V. S. Brown, from Instrument Design Establishment (Inland Area), to command No. 84 Squadron (Iraq). 6.5.22. P. C. Sherren, M.C., from R.A.F. Depot (Inland Area), to Half-pay List. 12.5.22.

Flight Lieutenants.—H. V. Jerrard, from R.A.F. Depot (Inland Area), to Stores Depot (Iraq). 6.5.22. W. A. Kingston, from Headquarters, R.A.F., Iraq. 6.5.22. A. T. Cooper, from R.A.F. Depot (Inland Area) to Headquarters, R.A.F., Iraq. 6.5.22. R. S. Booth, A.F.C., from School of Technical Training (Men) (Inland Area), for duty with British Section, Inter-Allied Aeronautical Commission of Guarantee. 5.5.22. E. B. Grenfell, from No. 47 Squadron (Middle East) to No. 2 Armoured Car Company (Middle East), for Armoured Car duties. 24.4.22. A. F. Brooke, from No. 27

Squadron (India), to R.A.F. Depot (Inland Area) (Supernumerary non-effective). 28.3.22. R. T. B. Houghton, A.F.C., from R.A.F. School (India) to No. 27 Squadron (India). 7.4.22. C. R. Keary, from No. 1 Wing Headquarters (India), to No. 20 Squadron (India). 15.4.22. G. C. Pirie, M.C., D.F.C., from School of Army Co-operation (Inland Area), to No. 4 Squadron (Inland Area). 17.5.22. H. G. White, from No. 4 Squadron (Inland Area), to School of Army Co-operation (Inland Area). 17.5.22. K. B. Lloyd A.F.C., from Headquarters, R.A.F., Middle East, to R.A.F. Depot (Inland Area) (Supernumerary). 27.4.22. J. B. Woodrow, from Research Laboratory and Medical Officers' School of Instruction (Inland Area), to R.A.F. Depot, for duty as Medical Officer. 15.5.22. Hon. Squadron Leader E. A. Aldridge, M.C., B.A., from Research Laboratory and Medical Officers' School of Instruction (Inland Area), to No. 1 School of Technical Training (Boys) (Halton), for duty as Medical Officer at R.A.F. Hospital, Halton. 15.5.22. A. G. Jones-Williams, M.C., from R.A.F. (Cadet) College (Flying Wing) (Cranwell), to R.A.F. Depot (Inland Area) (Supernumerary). 15.5.22. T. J. Thomas, M.B., from Engine Repair Depot (Middle East), to No. 4 Flying Training School (Middle East). 29.1.22. H. V. Worrall, D.S.C., from No. 230 Squadron (Coastal Area), to School of Naval Co-operation and Aerial Navigation (Coastal Area). 7.5.22. C. W. Bailey, from No. 230 Squadron (Coastal Area), to School of Naval Co-operation and Aerial Navigation (Coastal Area). 28.3.22. E. J. Webster, D.F.C., from No. 230 Squadron (Coastal Area), to School of Naval Co-operation and Aerial Navigation (Coastal Area). 28.3.22. Hon. Sqdn. Ldr. Frances W. Squair, T.D., M.B., to Inspector of Recruiting (London Depot) (Coastal Area), on appointment to temporary commission. 16.5.22. J. H. Wood, M.C., M.B., D.P.H., from Research Laboratory and Medical Officers' School of Instruction (Inland Area) to Headquarters, Coastal Area (Supernumerary). 22.5.22.

Aeroplane Wrecked in the Channel

A SPAD, belonging to the Messageries Aériennes, and piloted by M. Paul Morin, fell into the Channel a couple of miles off Folkestone on June 3. The machine, which carried two passengers, had left Croydon about 10.30, and was seen to go out over the sea at about 11.15. Some eye-witnesses to the accident state that the engine was running badly, and that the pilot returned and circled over the town as if in doubt whether or not to proceed. He then, apparently, made up his mind, and the machine flew out over the sea. When about two or three miles out the machine nose-dived into the sea, and an out-bound steamer hurried to the spot. The bodies of the pilot and one of the passengers were picked up shortly afterwards, but at the time of writing the third body has not been found. The cause of the accident will probably never be known, as, even in case of engine stoppage, the machine should not have nose-dived into the sea. One theory is that the pilot fainted.

At the inquest, which was held at Folkestone on June 6, no light was thrown on the cause of the accident, and the Coroner returned a verdict that Dr. Gordon Ley died from

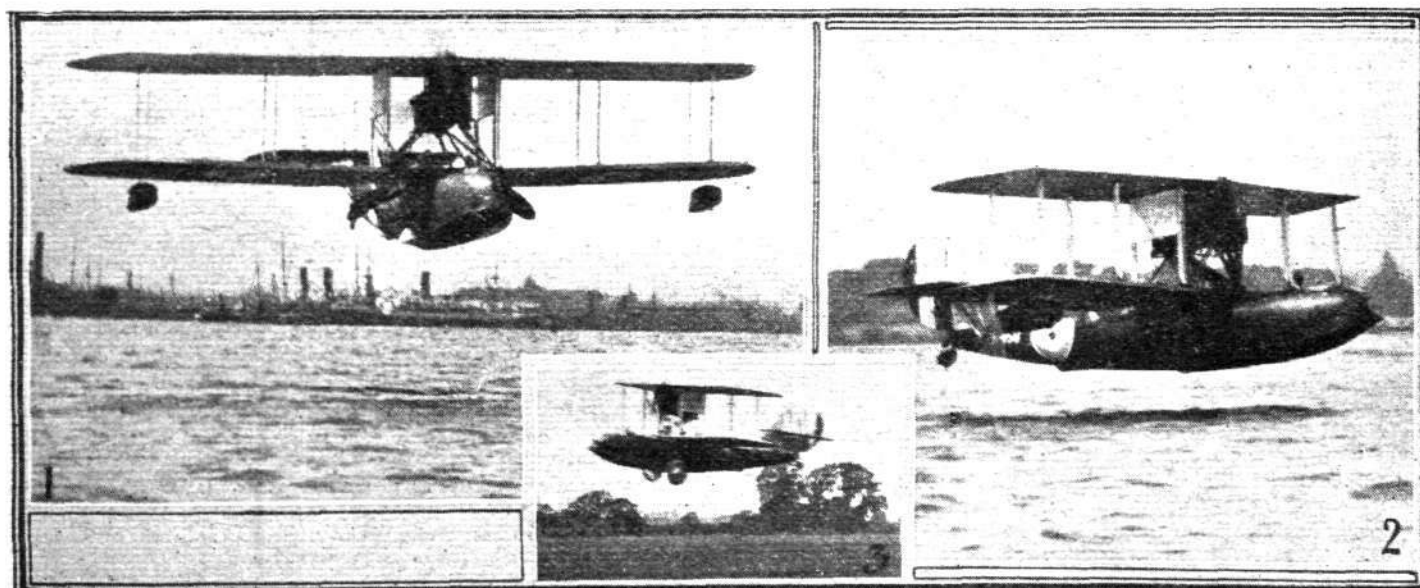
injuries accidentally received while a passenger in an aeroplane from Croydon to Paris. A similar verdict was returned in regard to the pilot, Mr. Morin, and sympathy was expressed with the relatives. The body of M. Carroll, the other passenger, has not yet been recovered.

The "Neptune" Wrecked?

FROM Algiers it is reported that the British flying boat "Neptune," in which Air Commodore Samson and his crew flew from Malta to Gibraltar, and which was forced down by engine trouble on the return journey, has been washed overboard from the lighter on which it was being towed by a destroyer.

Portuguese Aviators Succeed in Third Machine

AFTER having come to grief twice, through alighting in a very rough sea, the Portuguese aviators Comdr. Sacadura Cabral and Capt. Gago Coutinho have at last succeeded in reaching the South American mainland, on the third Fairey seaplane, Rolls-Royce "Eagle" engine, sent out to them. Leaving Fernando Noronha in the morning of June 5, just before eight, they arrived at Pernambuco about noon on the same day, and made a safe landing.



The latest Supermarine Amphibian Flying Boat, photographed during recent tests : In 1 the machine is seen just after getting off, and 2 shows her about to alight. In 3 she is flying over land, with the wheel undercarriage lowered. Note how wheels are lifted well clear of the water when flying over the sea.

PERSONALS

Married

On June 3, at St. Mary's, Hendon, Flight-Lieut. ALBERT WILLIAM FLETCHER, D.F.C., A.F.C., R.A.F., younger son of the late Cornelius and Mrs. Fletcher, of Child's Hill, N.W., was married to MARJORIE ELLIOT HAY, only daughter of Dr. and Mrs. Hay, of Thame, Oxfordshire.

Group Capt. EUGENE LOUIS GERRARD, C.M.G., D.S.O., R.A.F., youngest son of the late Mr. and Mrs. Thomas Gerrard, was married on June 1 to PHYLLIS LOUISA BALL, fourth daughter of the late Edward Stone and of Mrs. Stone.

Death

NORMAN SYDNEY (Lieut., M.C., Legion d'Honneur, 2nd Battalion East Surrey Regt. and R.A.F.), of Kingsdown, Burwash, Sussex, who died on May 26, after an operation for a head wound received in Salonica in May, 1917, was the eldest son of the late Sydney B. Beale, A.R.I.B.A., and Elizabeth Beale, of Sutton House, Sutton. He was in his twenty-ninth year.

Item

The will of the late Flight-Lieut. ROBERT CHARLES JENKINS, M.B.E., M.C., of Bicton Crofts, Godalming, formerly of White Cottage, Norton, Yarmouth, Isle of Wight, who died as the result of an accident while flying at Farnborough, aged 26, has been proved at £7,944.

Independent Air Force Reunion.

MONDAY, June 19, should see a full muster at the I.A.F. Reunion dinner at the Hotel Cecil, under the presidentship of Air Chief Marshal Sir H. M. Trenchard. In addition to Group-Captain H.R.H. the Duke of York, among the guests are General De Castelnau, Capt. the Rt. Hon. F. E. Guest, Secretary of State for Air, Mr. Winston Churchill, and Captain De Corvette Sable, French Air Attaché. I.A.F. members should address themselves to the Hon. Sec., I.F. Dinner Club, Room 337E, Alexandra House, Kingsway, W.C. 2.

An All Flying Services Dinner.

It is announced that on June 23, the night before the Royal Air Force Pageant, a gathering of past and present personnel of the Flying Services is to be held in London. Dinners are being organised for the various units of the R.N.A.S., R.F.C., and R.A.F., on that night, including the aeroplane, airship, kite-balloon and ground services.

The pageant will be a meeting-place for all airmen, and these dinners are being organised so that members of individual service units may foregather and renew their war-time associations. Anyone wishing to rejoin his old formation for the occasion is invited to write to the Honorary Secretary of the unit, c/o Room 651, The Air Ministry, Kingsway, W.C. 2, giving his rank and enclosing a stamped addressed envelope.

War Medals now Ready

THE War Medals (1914 Star, 1914-15 Star, British War Medal, and Victory Medal) are now being issued to ex-airmen. Any person entitled to medals by service in the Royal Flying Corps and Royal Air Force who has not yet received them should, therefore, make application to the Officer in Charge, R.A.F. Record Office, Ruislip, Middlesex, stating his regimental number and rank on demobilisation, and the address to which he desires the medals to be sent.

Kite-Balloon Observers and Prize Money

It is pointed out by Wing-Comdr. John Dunville, late Commanding Officer No. 1 Balloon Training Wing, and Mr. Harry Delacombe, late Kite Balloon Organisation Department, Air Ministry, that officers and men who did duty as kite-balloon observers at sea during the War are entitled to participate in the distribution of the naval prize fund. Those who are not aware of this fact can obtain full particulars from the Accountant-General of the Navy (Prize Fund Branch), Stamford Street, S.E.

More Entries for French Gliding Competition

THE number of entries for the French Gliding Competition to be held at Puy de Combebrasse from August 6-20 has now reached 30; 16 of these were given in a recent issue of FLIGHT. The additional entries are: 17, Gustave Thorouss; 18, Daniel Montagne; 19, Farman Works; 20, Henry Grandin; 21, J. Rolle; 22, Maurice Rousset; 23, Henry Potez; 24, Georges Sablier; 25, Pierre-Octave Detable; 26, Louis Peyret; 27, Aime Valette; 28, Ettore Bernasconi; 29, Maurice Griffieath; 30, Lucien Lefort.

THE LONDON AERO-MODELS ASSOCIATION

(The Society of Model Aeronautical Engineers.)

THE Competition held on Hackney Marshes on Saturday last was a great success, thanks to the excellent arrangements made by the Secretary of the Competitions Committee. Mr. C. Burchell won by getting round the course in 29 flights; time taken, 31 mins. Mr. Lansdown was second, doing the course in 33 flights; time, 51 mins. Mr. Rippon was third, in 39 flights in 31.10 mins.; Mr. Whelpton fourth, in 43 flights in 29 mins. Mr. Burchell flew his spar model, Mr. Lansdown an enclosed model, Mr. Rippon a Farman type. There were 10 entries in all, only the four mentioned above completing the course, which proved ideal for such competitions.

PUBLICATIONS RECEIVED.

Aviation in Peace and War. By Sir F. H. Sykes, G.B.E., K.C.B., C.M.G. London: Edward Arnold and Co., 41-43, Maddox Street, W. Price 8s. 6d. net.

Scientific Papers of the Bureau of Standards. No. 430. *High-Frequency Resistance of Inductance Coils.* By G. Breit. Department of Commerce, Bureau of Standards, Washington, D.C., U.S.A.

Scientific Papers of the Bureau of Standards. No. 431. *The Field Radiated from Two Horizontal Coils.* By G. Breit. Department of Commerce, Bureau of Standards, Washington, D.C., U.S.A.

Technical Note No. 96. Notes on Propeller Design—IV: General Proceeding in Design. By Max M. Munk. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motors. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1920

Published June 8, 1922

31,583. SPERRY GYROSCOPE Co. Gyroscopic compasses. (153,589.)

APPLIED FOR IN 1921

Published June 8, 1922

4,398. H. LEITNER. Screw propellers. (179,632.)
4,785. A. W. WELLER and J. F. N. YOUNG. Rotary engines. (179,661.)
5,417. J. H. HARE. Rotary explosion engines. (179,684.)
11,470. N. E. DAVIES. Propellers. (179,797.)
12,933. A. SERPIERI. Rotary engine. (169,426.)

APPLIED FOR IN 1922

Published June 8, 1922

9,952. H. E. S. HOLT. Parachutes. (179,884.)

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